

AMENDMENTS TO THE CLAIMS

1-14. (Canceled)

15. (New) A method for connecting a plurality of customer premises equipment to a service provider via an Asynchronous Transfer Mode (ATM) node, the method comprising:
establishing a plurality of communication sessions between the ATM node and each of a plurality of customer premises equipment;
forming a virtual connection between the ATM node and a service provider;
connecting the plurality of communication sessions to the service provider over the same virtual connection; and
performing routing between the customer premises equipment and the service provider via the virtual connection.

16. (New) The method of claim 15, wherein the ATM node comprises an access server function.

17. (New) The method of claim 16, wherein the access server function is a dedicated network element.

18. (New) The method of claim 16, wherein the access server function is integrated into or co-located with an ATM switch.

19. (New) The method of claim 16, wherein the access server function comprises a Digital Subscriber Line Access Multiplexer (DSLAM).

20. (New) The method of claim 15, wherein the virtual connection comprises a permanent virtual connection.

21. (New) The method of claim 15, wherein the virtual connection comprises a switched virtual connection.

22. (New) The method of claim 15, wherein the service provider is an Internet service provider (ISP).

23. (New) The method of claim 15, wherein the service provider is a content provider.

24. (New) The method of claim 15, wherein the service provider is a corporate network server.

25. (New) The method of claim 15, wherein one or more of the communication sessions between the customer premises equipment and the ATM node are established via a permanent virtual connection formed between the ATM node and a network termination point associated with each customer premises equipment.

26. (New) The method of claim 15, further comprising:
provisioning a pool of permanent virtual connections between the ATM node and the service provider; and
selecting a permanent virtual connection from the pool of permanent virtual connections to be used for a plurality of the consumer premises equipment, the selected permanent virtual connection being used by the connecting step to connect communication sessions to the service provider.

27. (New) The method of claim 15, further comprising:
establishing a tunneling protocol between each of one or more of the customer premises equipment and the ATM node.

28. (New) The method of claim 27, wherein the tunneling protocol comprises the Layer 2 Tunneling Protocol (L2TP).

29. (New) The method of claim 15, further comprising:
receiving at the ATM node a selection of the service provider from a customer premises equipment via an integrating signaling protocol.

30. (New) The method of claim 15, further comprising:
selecting the service provider by signaling from the ATM node.
31. (New) A network element for connecting each of several customer premises equipment to a service provider, the network element comprising:
means for establishing a plurality of communication sessions between the network element and each of a plurality of customer premises equipment;
means for forming a virtual connection between the network element and a service provider;
means for connecting the plurality of communication sessions to the service provider over the same virtual connection; and
means for performing routing between the customer premises equipment and the service provider via the virtual connection.
32. (New) The network element of claim 31, wherein the network element is an access server function.
33. (New) The network element of claim 32, wherein the access server function is a dedicated network element.
34. (New) The network element of claim 32, wherein the access server function is integrated into or co-located with an ATM switch.
35. (New) The network element of claim 32, wherein the access server function comprises a Digital Subscriber Line Access Multiplexer (DSLAM).
36. (New) The network element of claim 31, wherein the virtual connection comprises a permanent virtual connection.
37. (New) The network element of claim 31, wherein the virtual connection comprises a switched virtual connection.

38. (New) The network element of claim 31, wherein the service provider is an Internet service provider (ISP).

39. (New) The network element of claim 31, wherein the service provider is a content provider.

40. (New) The network element of claim 31, wherein the service provider is a corporate network server.

41. (New) The network element of claim 31, wherein the means for establishing is configured to establish one or more of the communication sessions between the customer premises equipment and the network element via a permanent virtual connection formed between the network element and a network termination point associated with each customer premises equipment.

42. (New) The network element of claim 31, further comprising:
means for provisioning a pool of permanent virtual connections between the network element and the service provider; and
means for selecting a permanent virtual connection from the pool of permanent virtual connections to be used for a plurality of the consumer premises equipment, the selected permanent virtual connection being used by the means for connecting to connect communication sessions to the service provider.

43. (New) The network element of claim 31, further comprising:
means for establishing a tunneling protocol between each of one or more of the customer premises equipment and the network element.

44 (New) The network element of claim 43, wherein the tunneling protocol comprises the Layer 2 Tunneling Protocol (L2TP).

45. (New) The network element of claim 31, further comprising:
means for receiving at the network element a selection of the service provider from a
customer premises equipment via an integrating signaling protocol.
46. (New) The network element of claim 31, further comprising:
means for selecting the service provider by signaling from the network element.